

A<sup>2</sup>

45. (Amended) A composition according to claim 1, wherein said at least one peroxidase is chosen from NADH peroxidases having NADH as donor, fatty acid peroxidases having a fatty acid as a donor, NADPH peroxidases having NADPH as donor, cytochrome-c peroxidases having ferrocytochrome c as donor, iodide peroxidases having iodides as donor, chloride peroxidases having chlorides as donor, L-ascorbate peroxidases having L-ascorbate as donor and glutathione peroxidases having glutathione as donor, catalases and peroxidases.

### REMARKS

#### I. Status of the Claims

Claims 1-87 are pending in this application. Claim 42 has been amended to change its dependency to address the rejection under 35 U.S.C. § 112, second paragraph. Because the amendment merely changes dependency from claim 1 to claim 36, which indirectly depends from claim 1, no new matter has been added.

Additionally, claim 45 has been amended to more clearly set forth the subject matter Applicant regards as the invention by removing "simplex" from the term "simplex peroxidases." The term "simplex peroxidases" is equivalent to "peroxidases" under the enzyme nomenclature EC 1.11.1.7. This amendment is supported by paragraph [063] of the specification. See also

<<http://www.chem.qmul.ac.uk/iubmb/enzyme/EC1/11/1/7.html>> (copy attached for the Examiner's convenience). Accordingly, Applicant submits that no new matter has been added by these amendments.

II. Rejections under 35 U.S.C. § 112, second paragraph

The definiteness of claim language must be analyzed, not in a vacuum, but in light of (1) the content of the particular application disclosure, (2) the teachings of the prior art, and (3) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. See, e.g., In re Marosi, 710 F.2d 799, 218 U.S.P.Q. 289 (Fed. Cir. 1983).

The Examiner has rejected claims 42 and 45-47 under 35 U.S.C. §112, second paragraph, for allegedly being indefinite. According to the Examiner, the term "laccase" has insufficient antecedent basis in claim 42. With respect to claims 45-47, the Examiner alleges that the terms "NADPH peroxidases", "NADH", and "simplex peroxidases" are unclear. See Office Action at 2. Applicant respectfully disagrees.

With respect to claim 42, Applicant has amended the claim to depend from claim 36, which specifically recites laccase. Accordingly, the rejection of claim 42 is now moot.

The Examiner rejects claims 45-47 because "it is unclear" whether the limitations, "NADPH peroxidases", "NADH", and "simplex peroxidases," "are trade names or scientific names" and the "specification does not provide any guidance." See Office Action at 2. Applicant respectfully disagrees with the Examiner's rejection of claims 45-47 and submits that the "limitations" NADPH peroxidases, NADH, and simplex peroxidases are terms of art that are commonly known types of enzymes. Furthermore, paragraph [062] of the specification discloses the reference Enzyme Nomenclature, Academic Press Inc., 1984, which readily defines NADPH and NADH peroxidases. Moreover, as discussed above, claim 45 has been amended to replace the term

"simplex peroxidases" with the equivalent term "peroxidases." Enzyme Nomenclature EC 1.11.1.7, cited in paragraph [063] of the specification, is sufficient to clearly define what enzymes are indicated by the term "peroxidases." Thus, for at least the foregoing reasons, Applicant submits that the rejections under 35 U.S.C. § 112, second paragraph, are in error and should be withdrawn.

III. Rejections under 35 U.S.C. § 103

In order to establish a prima facie case of obviousness, an Examiner must meet three basic criteria, which are listed below. First, the Examiner must demonstrate that there would have been some suggestion or motivation, either in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or combine reference teachings. Second, the Examiner must demonstrate that there would have been a reasonable expectation of success in making such a modification or combination. Finally, the references must teach or suggest all of the claim limitations. See M.P.E.P. § 2143.

A. De La Mettrie et al.

The Examiner has rejected claims 1-34 and 52-87 under 35 U.S.C. § 103(a) as obvious over De La Mettrie et al., U.S. Patent No. 6,312,477 ("the '477 patent") for the reasons set forth on pages 3-4 of the Office Action. According to the Examiner, the '477 patent teaches a hair dyeing composition comprising oxidation bases such as 2,3-diamino-6-methoxypyridine and 2-electron oxidoreductase enzymes and donors as the oxidizing system. See Office Action at 3. The Examiner also correctly notes that the "instant claims differ from the reference by reciting other enzymes such as 2-electron

oxidoreductase and peroxidase as oxidizing agents," but argues that the reference teaches, at col. 13, lines 29-31, that enzymes other than the 2-electron oxidoreductases can be used in its invention. See Office Action at 4.

Applicant respectfully traverses the rejection. The criteria for proving obviousness have not been met. Specifically, the reference does not teach or suggest all of the claim elements, nor does it provide any motivation for its modification.

First, contrary to the Examiner's assertions, the '477 patent actually teaches away from the presently claimed invention. In particular, the '477 patent discloses that among the pyridine derivatives useful in its invention, "mention may be made more particularly of the compounds described, for example, in patents GB 1,026,978 and GB 1,153,196, such as . . . 2,3-diamino-6-methoxypyridine . . . ." See '447 patent at col. 8, lines 3-7. However, upon the study of GB 1,026,978 and GB 1,153,196 ("the two British patents"), Applicant has found that neither of the two British patents teach pyridine derivatives that fall within the scope of formula (I) of the instant claims, let alone the specifically indicated compound, 2,3-diamino-6-methoxypyridine.

Specifically, GB 1,026,978 discloses a hair-dyeing process using neutral or slightly alkaline compositions containing one or more diamino-pyridines, preferably 2,3-diaminopyridine, 2,6-diaminopyridine and/or substitution products thereof. See GB 1,026,978, page 1, lines 12-18. While the presently claimed compound may conceivably be a 2,3-diaminopyridine, the ring must be substituted in position 6 with an OR<sub>1</sub> group. There is nothing in GB 1,026,978 to teach or suggest the desirability of making the OR<sub>1</sub> group substitution. GB 1,026,978 does not exemplify any substituted 2,3-diaminopyridines, let alone one that falls within the scope of the presently claimed

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pyridines. There is simply no motivation for one of ordinary skill to choose a pyridine of formula I from the broad, general disclosure of GB 1,026,978.

Likewise, GB 1,153,196 teaches a substituted 2,5-diaminopyridine where the carbon at position 5 of the pyridine ring is substituted with an amino group and the carbon at position 2 of the pyridine ring is substituted with a group of formula  $NR_1R_2$ . Thus, the amino group at position 2 is in the same position as substituent  $OR_1$  in formula I of the present invention. Obviously, these two groups are not equivalent and the compounds of GB 1,153,196 do not read on the presently claimed pyridines. Thus, the '477 patent does not teach pyridines within the scope of presently claimed formula (I). Accordingly, the '477 patent fails to teach or suggest all of the claim elements, as required to make a prima facie case of obviousness. For this reason alone, the rejection should be withdrawn.

Further, even if, for the sake of argument, the two British patents were found to suggest the presently claimed pyridines of formula (I), there would still not have been any motivation to choose pyridines as claimed from the lengthy disclosure of the reference. The description of useful oxidation bases in the '477 patent stretches from col. 5, line 13, to col. 10, line 23. None of the other pyridine derivatives specifically disclosed in the '477 patent fall within the scope of formula (I). The '477 patent teaches the equivalency of these compounds by disclosing that "the nature of the oxidation bases(s)...is not a critical factor." See '477 patent at col. 5, lines 13-14. Thus, there is nothing in the '477 patent to direct the skilled artisan to first, choose only pyridine compounds among these thousands of compounds, and second, to subsequently select

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the single pyridine compound disclosed that falls within the scope of the presently claimed pyridines.

In view of the above, the '477 patent fails to teach or suggest all of the present claim elements, and further fails to teach or suggest using pyridines as presently claimed in its compositions. Applicant therefore submits that the Examiner's § 103(a) rejection is in error and respectfully requests its withdrawal.

B. De La Mettrie (the '477 patent) in view of Sorensen et al.

Claims 35-44 have been rejected by the Examiner under 35 U.S.C § 103(a) as obvious over the '477 patent in view of Sorensen et al., WO 98/40471 ("Sorensen") for the reasons set forth on pages 4-5 of the Office Action. Applicant respectfully traverses.

The Examiner relies on the '477 patent to allegedly teach the oxidation dye of formula (I) and Sorensen to allegedly teach hair dyeing compositions comprising 4-electron oxidoreductase enzymes such as laccases. However, as discussed above, the '477 patent does not teach or suggest the oxidation dye of formula (I).

Sorensen does not remedy the deficiency of the '477 patent as a reference, because Sorensen also fails to teach the presently claimed oxidation dyes of formula (I). In fact, the only pyridine-based dye precursor disclosed in Sorensen is 2,6-diaminopyridine. See Sorensen, page 12. The arguments regarding obviousness presented above in the '477 patent discussion, are equally applicable here. Thus, in view of these arguments, Applicant submits that neither broad claim 35 nor its dependent claims are obvious over the combination of these two references, because neither of the cited references teaches or suggests the particular oxidation dyes of formula (I). Therefore, the Examiner has not met his burden of establishing a prima

facie case of obviousness with the above cited references, and the rejection should be withdrawn.

C. De La Mettrie (the '477 patent) in view of Dias et al.

Lastly, the Examiner has rejected claims 45-51 under 35 U.S.C § 103(a) as obvious over the '477 patent in view of Dias et al., U.S. Patent No. 6,309,426 ("Dias") for the reasons set forth at pages 4-5 of the Office Action. Applicant respectfully traverses.

The Examiner continues to rely on the '477 patent to allegedly teach the oxidation dye of formula (I) and relies on Dias to allegedly teach hair dyeing compositions comprising peroxidase enzymes.

As argued above, regarding the rejection of claims 1-34, 35-44, and 52-87, Applicant submits that claim 45 is not obvious over the combination of the '477 patent in view of Dias, because neither of the cited references teaches or suggests the particular oxidation dyes of formula (I). While Dias discloses dye forming intermediates that may be chosen from aromatic diamines, Dias fails to disclose or exemplify any diamines having a pyridine base that falls within the scope of the presently claimed oxidation dyes. The Examiner has failed to make a prima facie showing of obviousness over the '477 patent with Dias, at least because these references do not teach or suggest all the claimed limitations.

Accordingly, and for at least the aforementioned reasons, neither the '477 patent, nor its combination with either Sorensen or Dias, render the present claims obvious, and Applicant respectfully requests that the Examiner withdraw all rejections under 35 U.S.C. § 103(a).

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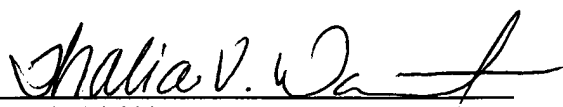
**CONCLUSION**

Applicant respectfully requests the reconsideration and continued examination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this Amendment, and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
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By:   
Thalia V. Warnement  
Reg. No. 39,064

Dated: August 19, 2002

Enclosure: copy of <<http://www.chem.qmul.ac.uk/iubmb/enzyme/EC1/11/1/7.html>>

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**APPENDIX**

Version with markings to show changes made pursuant to 37 C.F.R. § 1.121(c)(1)(ii):

**IN THE CLAIMS:**

42. (Amended) A composition according to claim **36** [1], wherein said at least one laccase is present in an amount ranging from 0.5 to 2000 Lacu per 100 g of ready-to-use dye composition.

45. (Amended) A composition according to claim 1, wherein said at least one peroxidase is chosen from NADH peroxidases having NADH as donor, fatty acid peroxidases having a fatty acid as a donor, NADPH peroxidases having NADPH as donor, cytochrome-c peroxidases having ferrocytochrome c as donor, iodide peroxidases having iodides as donor, chloride peroxidases having chlorides as donor, L-ascorbate peroxidases having L-ascorbate as donor and glutathione peroxidases having glutathione as donor, catalases and [simplex] peroxidases.

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